ATTACHMENT N

DHMH

HARDWARE STANDARDS

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SOFTWARE STANDARDS

STATE OF MARYLAND

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

INFORMATION RESOURCE MANAGEMENT ADMINISTRATION

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SOFTWARE STANDARDS

PURPOSE

The purpose of this standard is to guide the acquisition and support of commercial off-the-shelf (COTS) software by the Department of Health and Mental Hygiene (DHMH) in order to achieve State IT goals. This standard is to be implemented upon the acquisition of new software. However, it is recognized that the acquisition of new software may require a phase-in period for full compliance because of compatibility and other impacts of replacing or upgrading legacy software.

SCOPE

This standard applies to all units of the DHMH.

Except where noted below, this standard describes a standard configuration for all COTS software installed on DHMH information technology systems or acquired by DHMH through initial purchase or upgrade, including leased software, shareware and freeware. Modifications to the COTS software source code, custom-written routines to support application interoperability (e.g., "glue routines"), unique scripts to automate processes, software not readily available to the

general public, and other software not considered COTS are not included in these software standards. Also excluded from these standards is real-time and embedded software that does not perform IT functions.

COTS SOFTWARE CONFIGURATION

DHMH has defined minimum software configurations for the efficient and productive acquisition and use of IT computing hardware in order to accomplish its mission and program goals. These standard software configurations are to be used on hardware specified in the DHMH Hardware Standard. These hardware and software configuration standards are interrelated and have been developed to reflect an overall IT architecture that complies with the State IT Master Plan.

COTS software configurations are based on DHMH requirements. Where appropriate, COTS software is defined in terms of open standards rather than specific products (e.g., POSIX compliance for operating systems; TCP/IP protocol for inter-networking software, SMTP, MIME, and PCF-822 standards for email software, ANSI-89 SQL standard for database software, etc.) Where these open standards are not applicable, specific COTS software products are identified and include versions where necessary. For maximum flexibility, the term "or equivalent" has been used to indicate that COTS products that meet or exceed DHMH requirements are acceptable.

All COTS software that meets the DHMH configuration and support standards will be maintained by the Agency. Where a particular version of a COTS software product is specified, unless there is a justification otherwise, it is recommended that this version not be the latest available. This practice minimizes the risk of error-prone software. However, the justification for specifying a particular version of COTS software is at the discretion of DHMH.

The DHMH COTS configuration standards will be sufficiently flexible to adapt to changing business and service needs and are developed in the context of the statewide infrastructure as well as the DHMH IT Master Plan.

DHMH will periodically review and update, if necessary, its COTS Software configurations standards on an annual basis, but more frequently if warranted. The updates will follow the same review and implementation process as described above. The standard version number and a change history will be explicitly documented in each Software Standard update.

In developing minimum software configurations, DHMH considered the following criteria:

Total lifecycle cost. This cost includes initial costs such as purchase, installation and training, plus the on-going cost of maintenance and support. IT software costs shall be estimated for a DHMH specified time period.

Maintainability. This criterion addresses the ability to administer and perform corrective, adaptive or perfective maintenance on the COTS product within defined tolerance for cost and service, using vendor and/or internal support. This criterion includes minimal operational disruptions and downtime, the ability to tune the software to improve efficiency and effectiveness and the cost and effort to upgrade to improved versions of the software product.

Interoperability. This criterion seeks to minimize the additional support required to integrate the COTS product as a functioning component in the State IT portfolio. As an example, the exchange of information between potentially heterogeneous systems can be facilitated through

open standards or non-proprietary protocols (e.g., TCP/IP). Interoperability should include flexibility in supporting changes over time and among multiple state agencies and systems. Interoperability standards affecting more than one Agency will be mutually determined and consistent with all higher-level (e.g., Statewide) standards.

Portability. This criterion addresses the ability of an existing software component to move from one physical or logical position in the IT infrastructure with minimum impact on cost and service.

Scalability. This criterion ensures that acceptable COTS software products enhance the ability of the system to support future growth and increased throughput necessary to meet DHMH goals. This objective is achieved through excess capacity or the flexibility to easily modify and/or enhance the system as needed (e.g., application performance or transaction process speed, forward and backward compatibility, modularity, etc.)

Availability/Accessibility. This criterion seeks to maintain a system's operational readiness and required level of service without disruption from software failure. This is achieved through robust and/or redundant (e.g., fault tolerant) software. Operational readiness will include the ability of users and operators to access the system, in a timely fashion, to perform it's intended functions. Accessibility standards will, at a minimum, comply with the Americans with Disabilities Ace (ADA) of 1990 and other Federal and State laws related to universal access.

Reusability. This criterion addresses the ability to make repeated use of the COTS software product for additional requirements with minimum additional cost.

Functionality/performance. This criterion seeks to guarantee that the DHMH operational requirements, especially its mission critical requirements, intended to be performed by IT systems, can be achieved effectively and efficiently with the specified COTS software. It includes the properties of efficient software/hardware integration that affects the ability of the overall system to perform adequately to meet operational requirements.

Security. This criterion addresses the need to protect system data and the operational environment from loss or compromise. It includes the ability of the COTS software to prevent and contain malicious as well as non-malicious security breeches.

Other Specific Criteria. Other criteria are explicitly used for specifying the acceptable set of COTS software products. For example, vendor viability, licensing restrictions, potential product market share, customer recommendations, and product volatility (e.g., frequency of upgrades and potential obsolescence) may be important.

The following configurations are defined as the acceptable COTS software for DHMH based on an analysis of our requirements:

- **OPERATING SYSTEMS/HARDWARE MANAGEMENT**

  Desktop PC Workstation
  Microsoft Windows XX*

☐ ***Per Microsoft - Desktop operating systems entering Non-Supported phase (effective date)**:
MS DOS x.xx (December 31, 2001)
Windows 3.xx (December 31, 2001)
Windows 95 (November 30, 2001)

Windows NT 3.5x (December 31, 2001)
Windows 98/98 SE (June 30, 2003)
Windows NT 4.xx (June 30, 2003)
Windows 2000 (March 31, 2003)
Windows Me (December 31, 2003)

- *Network Server*
  Novell Netware 5.1, or higher

- **PERSONAL PRODUCTIVITY**

  Desktop Virus Protection:
  Selection is deferred to the individual user for standalone systems or to the network administrator for networked systems.

  Desktop Statistical Analysis:
  SAS Institute SAS 8.0, or higher
  SPSS
  CDC's EPIINFO

  Email:
  Novell Groupwise 5.5, or higher

  Office Suite:
  Microsoft Office XX

  Web Browser:
  Netscape Navigator 4.5, or higher
  Microsoft Internet Explorer 5.0, or higher

- **DATA MANAGEMENT**

  Large Database Development
  Oracle's Oracle 8, or higher

  Small Database Development
  Microsoft Access XX

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HARDWARE STANDARDS

PURPOSE

The purpose of this standard is to guide, in a consistent manner, the acquisition and support of standard information technology (IT) hardware configurations by the Department of Health and Mental Hygiene (DHMH) in order to achieve State IT goals. This standard is to be implemented upon the acquisition of new hardware. However, it is recognized that the acquisition of new hardware may require a phase-in period for full compliance because of compatibility and other impacts of replacing or upgrading legacy hardware.

SCOPE

This standard applies to all units of the DHMH.

This standard applies to standard acquisitions, upgrades and/or modifications of personal computers, (desktop workstations, laptops), and peripherals to include printers (e.g., heavy duty laser, standard network laser, standard color, etc.)

This standard does not pertain to telecommunications equipment (e.g., routers, hubs, LAN/WAN gateways, etc.), mainframe and mid-sized computers, network server platforms (supporting such server functions as web, database, electronic mail (E-mail), application, file transfer protocol (FTP), domain name, etc.), and other required hardware such as data backup and storage equipment (e.g., direct access storage devices), juke boxes, tape backups, etc., or specific equipment without Statewide applicability (e.g., barcode readers, automated fingerprint readers, etc.).

MINIMUM HARDWARE CONFIGURATIONS

DHMH has defined minimum hardware configurations for the efficient and productive acquisition and use of IT computing hardware in order to accomplish its mission and program goals. These minimum hardware configurations will be periodically updated on an annual basis, but more frequently if warranted.

In developing minimum hardware configurations, DHMH considered the following criteria:

Total lifecycle cost. This cost to long-term capital assets such as mainframe computers, includes initial costs such as purchase, installation, and training plus the longer-term cost of maintenance and support.

Long-term support. This criterion addresses the availability of vendor and/or internal support, including parts and labor. This criterion also includes minimal operational disruptions and downtime, and the ability to modify equipment to improve efficiency and effectiveness.

Interoperability. This criterion seeks to facilitate the exchange or information between potentially heterogeneous systems through conformance to open standards or non-proprietary protocols (e.g., TCP/IP). Interoperability includes flexibility in supporting changes over time and between multiple State Agencies and systems.

Compatibility. This criterion addresses the ability of hardware components to effectively and efficiently work together in an integrated system.

Scalability. This criterion is intended to ensure that the acceptable IT hardware components enhance the ability of the system to support future growth and increased throughput necessary to meet DHMH goals. This objective is achieved through excess capacity or the flexibility to easily modify and/or enhance the system as needed.

Availability/Accessibility. This criterion seeks to maintain a system's operational readiness through robust and/or redundant (e.g., fault tolerance) hardware. Operational readiness includes the ability of users and operators to access the system, in a timely fashion, to perform its intended functions.

Functionality/performance. This criterion intends to guarantee that the DHMH operational requirements, especially its mission critical requirements, intended to be performed by IT systems, can be achieved effectively and efficiently with the hardware specified by the minimal configuration standard. It includes the properties of the processor or clock speed, physical capacity (e.g., memory), and other hardware attributes (e.g., pages per minute and dotes per inch for printers) that determine the ability of the overall system to perform adequately to meet the current operational requirements.

Security. This criterion addresses the need to protect system data and the operational environment from loss or compromise. It includes the ability to prevent as well as recover from potential losses through backup equipment and safety equipment such as universal power supplies and surge suppressors.

Other Specific Criteria. Other criteria are explicitly used for specifying the minimum configuration for certain hardware components. For example, physical size (e.g., footprint or weight) may be required for laptops or other equipment that may be transportable or must fit in restricted spaces. These criteria should be noted, with an explanation for why they are necessary to meet DHMH goals, as part of the minimum hardware configuration standards.

The following configurations are defined as the minimum acceptable configurations for DHMH based on an analysis of our requirements:

- **PERSONAL COMPUTERS**

  Standard Desktop PC Workstation
  Intel Pentium III, 600mhz Central Processing Unit (CPU)
  256MB RAM (Memory)
  10GB Hard Drive (Data Storage)
  4MB VRAM (Video Memory)

3 1/2" Diskette Drive
CD ROM R/W Drive (for Backup Purposes)
10/100 Mbps Ethernet Adapter
15" Color Monitor
Keyboard
Mouse
Windows Operating System - See Software Standards

Standard Laptop PC Workstation
Intel Pentium III, 450mhz Central Processing Unit (CPU)
256MB Ram (Memory)
10GB Hard Drive (Data Storage)
3 1/2" Diskette Drive
CD ROM R/W Drive (for Backup Purposes)
12.1" TFT Screen
56K Modem
10/100 Mbps Ethernet Adapter
Mouse
Windows Operating System - See Software Standards

- **PERIPHERALS**

Laser Printer - Network - Black & White
Dual Input Bin
10/100mbps Ethernet Adapter
Designated "Network" Model
16 Pages Per Minute
1,200 x 1,200 dpi
12MB RAM

Laser Printer - Network - Color
Single Input Bin
10/100mbps Ethernet Adapter
Designated "Network" Model
16 Pages Per Minute, Black
4 Pages Per Minute, Color
600 x 600 dpi
32MB RAM

Inkjet Printer - Network - Color
Single Input Bin
10/100mbps Ethernet Adapter
Designated "Network" Model
8 Pages Per Minute, Black
4 Pages Per Minute, Color
600 x 600 dpi
24MB RAM

Laser Printer - Standalone
Single Input Bin
15 Pages Per Minute

1200 x 1200 dpi
8MB RAM

Inkjet Printer - Standalone
Single Input Bin
8 Pages Per Minute, Black
3.5 Pages Per Minute, Color
1,200 x 1,200 dpi

Desktop/Laptop Network Adapters
10/100 Mbps 3COM or SMC, PCI Adapter